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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,549	07/25/2002	Harry Israel Ringermacher	RD-28294	1282

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER	
KALIVODA, CHRISTOPHER M	
ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/064,549	RINGERMACHER ET AL.	
	Examiner	Art Unit	
	Christopher M. Kalivoda	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *After Final Amendment received 5/31/05*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 3, 4, 8-10, 12-15, 18-23, 33-39 and 41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *3, 4, 8-10, 13-15, 18-23* is/are allowed.

6)☒ Claim(s) *1, 12, 33-39 and 41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *July 25, 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

The indicated allowability of claim 1, 12, 33-39 and 41 is withdrawn in view of the newly discovered reference(s) to Yamamoto et al., U.S. Patent 5,519,751 and reconsideration of previously cited references. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kingsley et al., U.S. Patent 5,587,591 in view of Izumi et al., U.S. Patent 6,717,152.

Regarding independent claim 1, Kingsley et al., teach an imager for imaging a subject illuminated by incident radiation (Fig 1A, ref sign 75), said imager comprising: a substrate (Fig 1A, ref sign 105), a photosensor array disposed on said substrate (Fig 1A, ref sign 110), wherein said photosensor array comprises a plurality of photosensors and an addressable thin film transistor (TFT) array comprising a plurality of TFTs (Fig 1B), wherein each of said TFTs is electrically coupled to a respective one of said

photosensors so as to selectively address respective photosensors in said photosensor array (col 3, lines 61-64), and wherein each of said TFTs comprises a gate electrode (Fig 2a, ref sign 138), a semiconductive region (col 4, lines 64-65) comprising an organic semiconductor (col 5, lines 12-16) and disposed over said gate electrode, and a source electrode (Fig 2A, refs sign 137) and a drain electrode (Fig 2A, ref sign 136) in contact with said semiconductive region; and a scintillator disposed so as to receive and absorb the incident radiation (Fig 1A, ref sign 190), configured to convert the incident radiation to optical photons, and optically coupled to said photosensor array, wherein said photosensor array is configured to receive the optical photons and to generate an electrical signal corresponding to the optical photons (col 3, lines 12-16).

However, the reference is silent with respect to the substrate comprising a polymer.

Izumi teaches an imager for imaging a subject illuminated by incident radiation with a substrate made of polymer (col 7, lines 37-42 and Fig 2, ref sign 11).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kingsley et al. to include the polymer substrate of Izumi.

The motivation is to make the imager flexible (col 11, lines 62-65).

Regarding independent claim 39, Kinsley et al. teach a linear array computer tomography (CT) scanner for imaging a subject illuminated by incident radiation , said linear array CT scanner comprising:

a substrate (Fig 1A, ref sign 105);

a linear photosensor array disposed on said substrate (Fig 1A, ref sign 110) said photosensor array comprising a plurality of photosensors arranged in a row and an addressable thin film transistor (TFT) array comprising a plurality of TFTs (Fig 1B), each of said TFTs being electrically coupled to a respective one of said photosensors so as to selectively address respective photosensors in said linear photosensor array (col 3, lines 61-64), wherein each of said TFTs comprises a gate electrode (Fig 2a, ref sign 138), a semiconductive region (col 4, lines 64-65) comprising an organic semiconductor (col 5, lines 12-16) and disposed over said gate electrode, and a source electrode (Fig 2A, ref sign 137) and a drain electrode (Fig 2A, ref sign 136) in contact with said semiconductive region; a scintillator disposed so as to receive and absorb the incident radiation, configured to convert the incident radiation to optical photons, and optically coupled to said linear photosensor array (Fig 1A, ref sign 190), wherein said linear photosensor array is configured to receive the optical photons and to generate an electrical signal corresponding to the optical photons (col 3, lines 12-16) and wherein each of said photosensors is oriented at a predetermined angle relative to an adjacent one of said photosensors (Fig 1B), for alignment with the incident radiation (Fig 1A, ref sign 75), and wherein said substrate and said linear photosensor array are arranged in a fixed configuration (Fig 1A since the components are fixed in relation to each other to define the detector).

However, the reference is silent with respect to the substrate comprising a polymer.

Izumi teaches an imager for imaging a subject illuminated by incident radiation with a substrate made of polymer (col 7, lines 37-42 and Fig 2, ref sign 11).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kingsley et al. to include the polymer substrate of Izumi.

The motivation is to make the imager flexible (col 11, lines 62-65).

Regarding claim 41, Kingsley et al. in view of Izumi teach the limitations of claim 39 as described above. In addition, the linear photosensor array and said substrate are configured to be adjustable for arranging each of said photosensors at a predetermined angle relative to an adjacent one of said photosensors (col 9, lines 55-57 or 62-65 since the device can be flexed to conform to the surface of detection targets).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kingsley et al., U.S. Patent 5,587,591 in view of Izumi et al., U.S. Patent 6,717,152 and further in view of Suzuki et al., U.,S. Patent 6,867,418.

Regarding claim 12, Kingsley et al. in view of Izumi teach the limitations of claim 1 as described above. In addition, Kingsley et al. teach the semiconductive region is disposed over said source and drain electrodes, wherein said plurality of photosensors is situated between said substrate and said addressable TFT array, wherein said TFTs are optically transparent (Fig 2).

However, the reference is silent with respect to a cover layer disposed over said scintillator.

Suzuki et al. teach a cover layer disposed over said scintillator (col 3, lines 57-59 and Fig 1, ref sign 3).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Kingsley et al. in view of Izumi to include a cover layer disposed over said scintillator.

The motivation is to provide protection to the scintillator (col 3, line 57-59) or block water vapor (col 3, line 61-66).

Claim 33 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable Yamamoto et al., U.S. Patent 5,519,751.

Regarding independent claim 33, Yamamoto et al. teach a digital imaging method for imaging a subject, said digital imaging method comprising:

embedding at least one digital imager in the subject (col 3, lines 65-col 4, line 1);

activating a radiation source to expose the subject to a diverging radiation beam (Fig 1, ref sign 1), a portion of the subject being positioned between the radiation source and the digital imager; and collecting an image with the digital imager (Fig 1, ref sign 3).

While the reference does not specifically state "embedding", the device can be considered embedded since it is firmly/snugly enclosed in the subject.

Regarding claim 38, Yamamoto et al. teach the limitations of claim 33 as described above.

However, the reference is silent with respect to embedding a plurality of imagers in the subject.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to embedding a plurality of imagers in the subject, since it has been upheld that mere duplication of the essential working parts in a device involves only routine skill in the art (St Regis Paper v Bemis Co., 193 USPQ 8.)

The motivation for embedding a plurality of imagers in the subject is to image areas in a subject, which has multiple confined areas since Yamamoto et al. teach the device is used in restricted spaces (col 4, lines 32-36) and that the imager can be used in other x-ray apparatuses (col 4, lines 38-41).

Claim 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable Yamamoto et al., U.S. Patent 5,519,751 in view of Sorenson, U.S. Patent 6,636,581.

Regarding claims 34-36, Yamamoto et al. teach the limitations of claim 33 as described above. Furthermore, Yamamoto et al. teach the device is used in restricted spaces (col 4, lines 32-36) and that the imager can be used in other x-ray apparatuses (col 4, lines 38-41).

However, the reference is silent with respect to the subject comprising a section of an aircraft, fuselage, embedding the digital imager between the fuselage and insulation layer, a wing, embedding the digital imager within a wing and embedding a plurality of digital imagers in the subject.

Sorenson teaches that x-ray inspection of a subject such as aging aircraft would

provide superior detection of cracks (col 1, lines 33-35).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to image a section of an aircraft or fuselage, embed the digital imager between the fuselage and insulation layer, image a wing, embed the digital imager within a wing and embed a plurality of digital imagers in the subject.

The motivation for using the imager of Yamamoto et al. with an aircraft fuselage or wing is that x-ray imaging for crack detection is superior and the panels and insulation would not have to be removed (col 1, lines 35-37).

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable Yamamoto et al., U.S. Patent 5,519,751 in view of Foster, U.S. Patent 3,775,612.

Regarding claim 37, Yamamoto et al. teach the limitations of claim 33 as described. Furthermore, Yamamoto et al. teach the device is used in restricted spaces (col 4, lines 32-36) and that the imager can be used in other x-ray apparatuses (col 4, lines 38-41).

However, the reference is silent with respect to embedding the imager in a section of pipeline.

Foster et al. teaches the use of x-ray imaging to inspect pipe welds (col 1, lines 1-4).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to embed the imager in a pipe.

The motivation is to examine welds to identify cracks (col 1, lines 1-4).

Allowable Subject Matter

Claims 3, 4, 8-10, 13-15 and 18-23 are allowed for the following reasons:

Independent claim 8 is allowed for the reasons stated in a previous office action (Paper 110904).

Independent claim 15 is allowed for the reasons stated in a previous office action (dated May 13, 2005).

Claims 3, 4, 9, 10, 13 and 14; 18-23 depend on claims 8 and 15 respectively and therefore they are also allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Kalivoda whose telephone number is (571) 272-2476. The examiner can normally be reached on Monday - Friday (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
06/13/05

Frank G. Font
Supervisory Patent Examiner
Technology Center 2800